

Common name	Scientific name	Limitations
Quebracho bark .....	<i>Aspidosperma quebracho-blanco</i> Schlecht, or ( <i>Quebrachia lorentzii</i> (Griseb.)).	<i>Schinopsis lorentzii</i> (Griseb.) Engl.
Quillaia (soapbark) .....	<i>Quillaja saponaria</i> Mol.	In alcoholic beverages only.
Red saunders (red sandalwood) .....	<i>Pterocarpus san alinus</i> L .....	
Rhatany root .....	<i>Krameria triandra</i> Ruiz et Pav. or <i>K. argentea</i> Mart.	
Rhubarb, garden root .....	<i>Rheum rhaboticum</i> L .....	Do.
Rhubarb root .....	<i>Rheum officinale</i> Baill., <i>R. palmatum</i> L., or other spp. (excepting <i>R. rhaboticum</i> L.) or hybrids of <i>Rheum</i> grown in China.	
Roselle .....	<i>Hibiscus sabdariffa</i> L .....	Do.
Rosin (colophony) .....	<i>Pinus palustris</i> Mill., and other <i>Pinus</i> spp .....	Do.
St. Johnswort leaves, flowers, and caulis.	<i>Hypericum perforatum</i> L .....	Hypericin-free alcohol distillate form only; in alcoholic beverages only.
Sandalwood, white (yellow, or East Indian).	<i>Santalum album</i> L .....	
Sandarac .....	<i>Tetraclinis articulata</i> (Vahl.), Mast .....	
Sarsaparilla .....	<i>Smilax aristolochiaefolia</i> Mill., (Mexican sarsaparilla), <i>S. regelii</i> Kilip et Morton (Honduras sarsaparilla), <i>S. febrifuga</i> Kunth (Ecuadorian sarsaparilla), or undetermined <i>Smilax</i> spp. (Ecuadorian or Central American sarsaparilla).	
Sassafras leaves .....	<i>Sassafras albidum</i> (Nutt.) Nees .....	Safrole free.
Senna, Alexandria .....	<i>Cassia acutifolia</i> Delile.	
Serpentaria (Virginia snakeroot) .....	<i>Aristolochia serpentaria</i> L .....	
Simaruba bark .....	<i>Simaruba amara</i> Aubl .....	
Snakeroot, Canadian (wild ginger)	<i>Asarum canadense</i> L..	
Spruce needles and twigs .....	<i>Picea glauca</i> (Moench) Voss or <i>P. mariana</i> (Mill.) BSP.	
Storax (styrax) .....	<i>Liquidambar orientalis</i> Mill. or <i>L. styraciflua</i> L..	
Tagetes (marigold) .....	<i>Tagetes patula</i> L., <i>T. erecta</i> L., or <i>T. minuta</i> L. ( <i>T. glandulifera</i> Schrank).	
Tansy .....	<i>Tanacetum vulgare</i> L .....	
Thistle, blessed (holy thistle) .....	<i>Onicus benedictus</i> L .....	
<i>Thymus capitatus</i> (Spanish "origanum").	<i>Thymus capitatus</i> Hoffmg. et Link..	
Tolu .....	<i>Myroxylon balsamum</i> (L.) Harms.	
Turpentine .....	<i>Pinus palustris</i> Mill. and other <i>Pinus</i> spp. which yield terpene oils exclusively.	
Valerian rhizome and roots .....	<i>Valeriana officinalis</i> L..	
Veronica .....	<i>Veronica officinalis</i> L .....	Do.
Vervain, European .....	<i>Verbena officinalis</i> L .....	Do.
Vetiver .....	<i>Vetiveria zizanioides</i> Stapf .....	Do.
Violet, Swiss .....	<i>Viola calcarata</i> L..	
Walnut husks (hulls), leaves, and green nuts.	<i>Juglans nigra</i> L. or <i>J. regia</i> L..	
Woodruff, sweet .....	<i>Asperula odorata</i> L .....	
Yarrow .....	<i>Achillea millefolium</i> L .....	
Yerba santa .....	<i>Eriodictyon californicum</i> (Hook. et Arn.) Torr..	
Yucca, Joshua-tree .....	<i>Yucca brevifolia</i> Engelm.	
Yucca, Mohave .....	<i>Yucca schidigera</i> Roezl ex Ortgies ( <i>Y. mojavensis</i> Sarg.).	

<sup>1</sup> As determined by using the method (or, in other than alcoholic beverages, a suitable adaptation thereof) in section 9.129 of the "Official Methods of Analysis of the Association of Official Analytical Chemists," 13th Ed. (1980), which is incorporated by reference. Copies may be obtained from the Association of Official Analytical Chemists International, 481 North Frederic Ave., suite 500, Gaithersburg, MD 20877-2504, or may be examined at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC 20408

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### § 172.515 Synthetic flavoring substances and adjuvants.

Synthetic flavoring substances and adjuvants may be safely used in food in accordance with the following conditions.

(a) They are used in the minimum quantity required to produce their intended effect, and otherwise in accordance with all the principles of good manufacturing practice.

(b) They consist of one or more of the following, used alone or in combination

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with flavoring substances and adjuvants generally recognized as safe in food, prior-sanctioned for such use, or regulated by an appropriate section in this part.

Acetal; acetaldehyde diethyl acetal.  
Acetaldehyde phenethyl propyl acetal.  
Acetanisole; 4'-methoxyacetophenone.  
Acetophenone; methyl phenyl ketone.  
Allyl anthranilate.  
Allyl butyrate.  
Allyl cinnamate.  
Allyl cyclohexaneacetate.  
Allyl cyclohexanebutyrate.  
Allyl cyclohexanehexanoate.  
Allyl cyclohexanepropionate.  
Allyl cyclohexaneveralate.  
Allyl disulfide.  
Allyl 2-ethylbutyrate.  
Allyl hexanoate; allyl caproate.  
Allyl  $\alpha$ -ionone; 1-(2,6,6-trimethyl-2-cyclohexene-1-yl)-1,6-heptadiene-3-one.  
Allyl isothiocyanate; mustard oil.  
Allyl isovalerate.  
Allyl mercaptan; 2-propene-1-thiol.  
Allyl nonanoate.  
Allyl octanoate.  
Allyl phenoxyacetate.  
Allyl phenylacetate.  
Allyl propionate.  
Allyl sorbate; allyl 2,4-hexadienoate.  
Allyl sulfide.  
Allyl tiglate; allyl *trans*-2-methyl-2-butenoate.  
Allyl 10-undecenoate.  
Ammonium isovalerate.  
Ammonium sulfide.  
Amyl alcohol; pentyl alcohol.  
Amyl butyrate.  
 $\alpha$ -Amylcinnamaldehyde.  
 $\alpha$ -Amylcinnamaldehyde dimethyl acetal.  
 $\alpha$ -Amylcinnamyl acetate.  
 $\alpha$ -Amylcinnamyl alcohol.  
 $\alpha$ -Amylcinnamyl formate.  
 $\alpha$ -Amylcinnamyl isovalerate.  
Amyl formate.  
Amyl heptanoate.  
Amyl hexanoate.  
Amyl octanoate.  
Anisole; methoxybenzene.  
Anisyl acetate.  
Anisyl alcohol; *p*-methoxybenzyl alcohol.  
Anisyl butyrate.  
Anisyl formate.  
Anisyl phenylacetate.  
Anisyl propionate.  
Beechwood creosote.  
Benzaldehyde dimethyl acetal.  
Benzaldehyde glyceryl acetal; 2-phenyl-*m*-dioxan-5-ol.  
Benzaldehyde propylene glycol acetal; 4-methyl-2-phenyl-*m*-dioxolane.  
Benzene-thiol; thiophenol.  
Benzoin; 2-hydroxy-2-phenylacetophenone.  
Benzophenone; diphenylketone.  
Benzyl acetate.

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Benzyl acetoacetate.  
Benzyl alcohol.  
Benzyl benzoate.  
Benzyl butyl ether.  
Benzyl butyrate.  
Benzyl cinnamate.  
Benzyl 2,3-dimethylcrotonate; benzyl methyl tiglate.  
Benzyl disulfide; dibenzyl disulfide.  
Benzyl ethyl ether.  
Benzyl formate.  
3-Benzyl-4-heptanone; benzyl dipropyl ketone.  
Benzyl isobutyrate.  
Benzyl isovalerate.  
Benzyl mercaptan;  $\alpha$ -toluenethiol.  
Benzyl methoxyethyl acetal; acetaldehyde benzyl  $\beta$ -methoxyethyl acetal.  
Benzyl phenylacetate.  
Benzyl propionate.  
Benzyl salicylate.  
Birch tar oil.  
Borneol; *d*-camphanol.  
Bornyl acetate.  
Bornyl formate.  
Bornyl isovalerate.  
Bornyl valerate.  
 $\beta$ -Bourbonene; 1,2,3,3a,3b $\beta$ ,4,5,6,6a $\beta$ ,6b $\alpha$ -decahydro-*la*-isopropyl-3a $\alpha$ -methyl-6-methylene-cyclobuta [1,2,3,4] dicyclopentene.  
2-Butanol.  
2-Butanone; methyl ethyl ketone.  
Butter acids.  
Butter esters.  
Butyl acetate.  
Butyl acetoacetate.  
Butyl alcohol; 1-butanol.  
Butyl anthranilate.  
Butyl butyrate.  
Butyl butyryllactate; lactic acid, butyl ester, butyrate.  
 $\alpha$ -Butylcinnamaldehyde.  
Butyl cinnamate.  
Butyl 2-decanoate.  
Butyl ethyl malonate.  
Butyl formate.  
Butyl heptanoate.  
Butyl hexanoate.  
Butyl *p*-hydroxybenzoate.  
Butyl isobutyrate.  
Butyl isovalerate.  
Butyl lactate.  
Butyl laurate.  
Butyl levulinate.  
Butyl phenylacetate.  
Butyl propionate.  
Butyl stearate.  
Butyl sulfide.  
Butyl 10-undecenoate.  
Butyl valerate.  
Butyraldehyde.  
Cadinene.  
Camphene; 2,2-dimethyl-3-methylenenorbornane.  
*d*-Camphor.  
Carvacrol; 2-*p*-cymenol.  
Carvacryl ethyl ether; 2-ethoxy-*p*-cymene.

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Carveol; <i>p</i> -mentha-6,8-dien-2-ol.	Decyl propionate.
4-Carvomenthenol; 1- <i>p</i> -menthen-4-ol; 4-terpinenol.	Dibenzyl ether.
<i>cis</i> Carvone oxide; 1,6-epoxy- <i>p</i> -menth-8-en-2-one.	4,4-Dibutyl- $\gamma$ -butyrolactone; 4,4-dibutyl-4-hydroxy-butyric acid, $\gamma$ -lactone.
Carvyl acetate.	Diethyl sebacate.
Carvyl propionate.	Diethyl malate.
$\beta$ -Caryophyllene.	Diethyl malonate; ethyl malonate.
Caryophyllene alcohol.	Diethyl sebacate.
Caryophyllene alcohol acetate.	Diethyl succinate.
$\beta$ -Caryophyllene oxide; 4-12,12-trimethyl-9-methylene-5-oxatricyclo [8.2.0 <sup>4,6</sup> ] dodecane.	Diethyl tartrate.
Cedarwood oil alcohols.	2,5-Diethyltetrahydrofuran.
Cedarwood oil terpenes.	Dihydrocarveol; 8- <i>p</i> -menthen-2-ol; 6-methyl-3-isopropenylcyclohexanol.
1,4-Cineole.	Dihydrocarvone.
Cinnamaldehyde ethylene glycol acetal.	Dihydrocarvyl acetate.
Cinnamic acid.	<i>m</i> -Dimethoxybenzene.
Cinnamyl acetate.	<i>p</i> -Dimethoxybenzene; dimethyl hydroquinone.
Cinnamyl alcohol; 3-phenyl-2-propen-1-ol.	2,4-Dimethylacetophenone.
Cinnamyl benzoate.	$\alpha,\alpha$ -Dimethylbenzyl isobutyrate; phenyldimethylcarbinyl isobutyrate.
Cinnamyl butyrate.	2,6-Dimethyl-5-heptenal.
Cinnamyl cinnamate.	2,6-Dimethyl octanal; isodecylaldehyde.
Cinnamyl formate.	3,7-Dimethyl-1-octanol; tetrahydrogeraniol.
Cinnamyl isobutyrate.	$\alpha,\alpha$ -Dimethylphenethyl acetate; benzylpropyl acetate;
Cinnamyl isovalerate.	benzylidemethylcarbinyl acetate.
Cinnamyl phenylacetate.	$\alpha,\alpha$ -Dimethylphenethyl alcohol; dimethylbenzyl carbinol.
Cinnamyl propionate.	$\alpha,\alpha$ -Dimethylphenethyl butyrate; benzylidemethylcarbinyl butyrate.
Citral diethyl acetal; 3,7-dimethyl-2,6-octadienal diethyl acetal.	$\alpha,\alpha$ -Dimethylphenethyl formate; benzylidemethylcarbinyl formate.
Citral dimethyl acetal; 3,7-dimethyl-2,6-octadienal dimethyl acetal.	Dimethyl succinate.
Citral propylene glycol acetal.	1,3-Diphenyl-2-propanone; dibenzyl ketone.
Citronellal; 3,7-dimethyl-6-octenol; rhodinal.	delta-Dodecalactone; 5-hydroxydodecanoic acid, delta lactone.
Citronellol; 3,7-dimethyl-6-octen-1-ol; <i>d</i> -citronellol.	$\gamma$ -Dodecalactone; 4-hydroxydodecanoic acid $\gamma$ -lactone.
Citronelloxyacetaldehyde.	2-Dodecenal.
Citronellyl acetate.	Estragole.
Citronellyl butyrate.	<i>p</i> -Ethoxybenzaldehyde.
Citronellyl formate.	Ethyl acetoacetate.
Citronellyl isobutyrate.	Ethyl 2-acetyl-3-phenylpropionate; ethylbenzyl acetoacetate.
Citronellyl phenylacetate.	Ethyl aconitate, mixed esters.
Citronellyl propionate.	Ethyl acrylate.
Citronellyl valerate.	Ethyl <i>p</i> -anisate.
<i>p</i> -Cresol.	Ethyl anthranilate.
Cuminaldehyde; cuminal; <i>p</i> -isopropyl benzaldehyde.	Ethyl benzoate.
Cyclohexaneacetic acid.	Ethyl benzoylacetate.
Cyclohexaneethyl acetate.	$\alpha$ -Ethylbenzyl butyrate; $\alpha$ -phenylpropyl butyrate.
Cyclohexyl acetate.	Ethyl brassylate; tridecanedioic acid cyclic ethylene glycol diester; cyclo 1,13-ethylenedioxytridecan-1,13-dione.
Cyclohexyl anthranilate.	2-Ethylbutyl acetate.
Cyclohexyl butyrate.	2-Ethylbutyraldehyde.
Cyclohexyl cinnamate.	2-Ethylbutyric acid.
Cyclohexyl formate.	Ethyl cinnamate.
Cyclohexyl isovalerate.	Ethyl crotonate; <i>trans</i> -2-butenoic acid ethylester.
Cyclohexyl propionate.	Ethyl cyclohexanepropionate.
<i>p</i> -Cymene.	Ethyl decanoate.
$\gamma$ -Decalactone; 4-hydroxy-decanoic acid, $\gamma$ -lactone.	2-Ethylfuran.
$\gamma$ -Decalactone; 5-hydroxy-decanoic acid, $\delta$ -lactone.	Ethyl 2-furanpropionate.
Decanal dimethyl acetal.	4-Ethylguaiacol; 4-ethyl-2-methoxyphenol.
1-Decanol; decyclic alcohol.	
2-Decenal.	
3-Decen-2-one; heptylidene acetone.	
Decyl acetate.	
Decyl butyrate.	

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Ethyl heptanoate.	$\gamma$ -Heptalactone; 4-hydroxyheptanoic acid, $\gamma$ -lactone.
2-Ethyl-2-heptenal; 2-ethyl-3-butylacrolein.	Heptanal; enanthaldehyde.
Ethyl hexanoate.	Heptanal dimethyl acetal.
Ethyl isobutyrate.	Heptanal 1,2-glyceryl acetal.
Ethyl isovalerate.	2,3-Heptanedione; acetyl valeryl.
Ethyl lactate.	3-Heptanol.
Ethyl laurate.	2-Heptanone; methyl amyl ketone.
Ethyl levulinate.	3-Heptanone; ethyl butyl ketone.
Ethyl maltol; 2-ethyl-3-hydroxy-4H-pyran-4-one.	4-Heptanone; dipropyl ketone.
Ethyl 2-methylbutyrate.	<i>cis</i> -4-Heptenal; <i>cis</i> -4-hepten-1-al.
Ethyl myristate.	Heptyl acetate.
Ethyl nitrite.	Heptyl alcohol; enanthic alcohol.
Ethyl nonanoate.	Heptyl butyrate.
Ethyl 2-nonynoate; ethyl octyne carbonate.	Heptyl cinnamate.
Ethyl octanoate.	Heptyl formate.
Ethyl oleate.	Heptyl isobutyrate.
Ethyl phenylacetate.	Heptyl octanoate.
Ethyl 4-phenylbutyrate.	1-Hexadecanol; cetyl alcohol.
Ethyl 3-phenylglycidate.	$\omega$ -6-Hexadecenolactone; 16-hydroxy-6-hexadecenoic acid, $\omega$ -lactone; ambrettolide.
Ethyl 3-phenylpropionate; ethyl hydrocinnamate.	$\gamma$ -Hexalactone; 4-hydroxyhexanoic acid, $\gamma$ -lactone; tonkalide.
Ethyl propionate.	Hexanal; caproic aldehyde.
Ethyl pyruvate.	2,3-Hexanedione; acetyl butyryl.
Ethyl salicylate.	Hexanoic acid; caproic acid.
Ethyl sorbate; ethyl 2,4-hexadienoate.	2-Hexenal.
Ethyl tiglate; ethyl <i>trans</i> -2-methyl-2-butenoate.	2-Hexen-1-ol.
Ethyl undecanoate.	3-Hexen-1-ol; leaf alcohol.
Ethyl 10-undecenoate.	2-Hexen-1-yl acetate.
Ethyl valerate.	3-Hexenyl isovalerate.
Eucalyptol; 1,8-epoxy- <i>p</i> -menthane; cineole.	3-Hexenyl 2-methylbutyrate.
Eugenyl acetate.	3-Hexenyl phenylacetate; <i>cis</i> -3-hexenyl phenylacetate.
Eugenyl benzoate.	Hexyl acetate.
Eugenyl formate.	2-Hexyl-4-acetoxytetrahydrofuran.
Eugenyl methyl ether; 4-allylveratrole; methyl eugenol.	Hexyl alcohol.
Farnesol; 3,7,11-trimethyl-2,6,10-dodecatrien-1-ol.	Hexyl butyrate.
<i>d</i> -Fenchone; <i>d</i> -1,3,3-trimethyl-2-norbornanone.	$\alpha$ -Hexylcinnamaldehyde.
Fenchyl alcohol; 1,3,3-trimethyl-2-norbornanol.	Hexyl formate.
Formic acid	Hexyl hexanoate.
(2-Furyl)-2-propanone; furyl acetone.	2-Hexylidene cyclopentanone.
1-Furyl-2-propanone; furyl acetone.	Hexyl isovalerate.
Fusel oil, refined (mixed amyl alcohols).	Hexyl 2-methylbutyrate.
Geranyl acetoacetate; <i>trans</i> -3,7-dimethyl-2,6-octadien-1-yl acetoacetate.	Hexyl octanoate.
Geranyl acetone; 6,10-dimethyl-5,9-undecadien-2-one.	Hexyl phenylacetate; <i>n</i> -hexyl phenylacetate.
Geranyl benzoate.	Hexyl propionate.
Geranyl butyrate.	Hydroxycitronellal; 3,7-dimethyl-7-hydroxyoctanal.
Geranyl formate.	Hydroxycitronellal diethyl acetal.
Geranyl hexanoate	Hydroxycitronellal dimethyl acetal.
Geranyl isobutyrate.	Hydroxycitronellal; 3,7-dimethyl-1,7-octandiol.
Geranyl isovalerate.	<i>N</i> -(4-Hydroxy-3-methoxybenzyl)-nonanamide; pelargonyl vanillylamide.
Geranyl phenylacetate.	5-Hydroxy-4-octanone; butyroin.
Geranyl propionate.	4-( <i>p</i> -Hydroxyphenyl)-2-butanone; <i>p</i> -hydroxybenzyl acetone.
Glucose pentaacetate.	Indole.
Guaiacol; $\mu$ -methoxyphenol.	$\alpha$ -Ionone; 4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one.
Guaiacyl acetate; $\mu$ -methoxyphenyl acetate.	$\beta$ -Ionone; 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one.
Guaiacyl phenylacetate.	$\alpha$ -Irene; 4-(2,5,6,6-tetramethyl-2-cyclohexene-1-yl)-3-buten-2-one; 6-methylionone.
Guaiene; 1,4-dimethyl-7-isopropenyl- $\Delta$ 9,10-octahydroazulene.	Isoamyl acetate.
Guaiol acetate; 1,4-dimethyl-7-( $\alpha$ -hydroxyisopropyl)-89,10-octahydroazulene acetate.	

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Isoamyl acetoacetate.	Isopropyl alcohol; isopropanol.
Isoamyl alcohol; isopentyl alcohol; 3-methyl-1-butanol.	Isopropyl benzoate.
Isoamyl benzoate.	ρ-Isopropylbenzyl alcohol; cuminic alcohol; ρ-cymen-7-ol.
Isoamyl butyrate.	Isopropyl butyrate.
Isoamyl cinnamate.	Isopropyl cinnamate.
Isoamyl formate.	Isopropyl formate.
Isoamyl 2-furanbutyrate; α-isooamyl furfurylpropionate.	Isopropyl hexanoate.
Isoamyl 2-furanpropionate; α-isooamyl furfurylacetate.	Isopropyl isobutyrate.
Isoamyl hexanoate.	Isopropyl isovalerate.
Isoamyl isobutyrate.	ρ-Isopropylphenylacetaldehyde; ρ-cymen-7-carboxaldehyde.
Isoamyl isovalerate.	Isopropyl phenylacetate.
Isoamyl laurate.	3-(ρ-Isopropylphenyl)-propionaldehyde; ρ-isopropylhydrocinnamaldehyde; cuminyl acetaldehyde.
Isoamyl-2-methylbutyrate; isopentyl-2-methylbutyrate.	Isopropyl propionate.
Isoamyl nonanoate.	Isopulegol; <i>p</i> -menth-8-en-3-ol.
Isoamyl octanoate.	Isopulegone; <i>p</i> -menth-8-en-3-one.
Isoamyl phenylacetate.	Isopulegyl acetate.
Isoamyl propionate.	Isoquinoline.
Isoamyl pyruvate.	Isovaleric acid.
Isoamyl salicylate.	<i>cis</i> -Jasmone; 3-methyl-2-(2-pentenyl)-2-cyclopenten-1-one.
Isoborneol.	Lauric aldehyde; dodecanal.
Isobornyl acetate.	Lauryl acetate.
Isobornyl formate.	Lauryl alcohol; 1-dodecanol.
Isobornyl isovalerate.	Lepidine; 4-methylquinoline.
Isobornyl propionate.	Levulinic acid.
Isobutyl acetate.	Linalool oxide; <i>cis</i> - and <i>trans</i> -2-vinyl-2-methyl-5(1'-hydroxy-1'-methyl ethyl) tetrahydrofuran.
Isobutyl acetoacetate.	Linalyl anthranilate; 3,7-dimethyl-1,6-octadien-3-yl anthranilate.
Isobutyl alcohol.	Linalyl benzoate.
Isobutyl angelate; isobutyl <i>cis</i> -2-methyl-2-butenoate.	Linalyl butyrate.
Isobutyl anthranilate.	Linalyl cinnamate.
Isobutyl benzoate.	Linalyl formate.
Isobutyl butyrate.	Linalyl hexanoate.
Isobutyl cinnamate.	Linalyl isobutyrate.
Isobutyl formate.	Linalyl isovalerate.
Isobutyl 2-furanpropionate.	Linalyl octanoate.
Isobutyl heptanoate.	Linalyl propionate.
Isobutyl hexanoate.	Maltol; 3-hydroxy-2-methyl-4H-pyran-4-one.
Isobutyl isobutyrate.	Menthadienol; <i>p</i> -mentha-1,8(10)-dien-9-ol.
α-Isobutylphenethyl alcohol; isobutyl benzyl carbinol; 4-methyl-1-phenyl-2-pentanol.	<i>p</i> -Menth-1,8-dien-7-ol; perillyl alcohol.
Isobutyl phenylacetate.	Menthadienyl acetate; <i>p</i> -mentha-1,8(10)-dien-9-yl acetate.
Isobutyl propionate.	<i>p</i> -Menth-3-en-1-ol.
Isobutyl salicylate.	1- <i>p</i> -Menth-9-yl acetate; <i>p</i> -menth-1-en-9-yl acetate.
2-Isobutylthiazole.	Menthol; 2-isopropyl-5-methylcyclohexanol.
Isobutyraldehyde.	Menthone; <i>p</i> -menthan-3-one.
Isobutyric acid.	Methyl acetate; <i>p</i> -menth-3-yl acetate.
Isoeugenol; 2-methoxy-4-propenylphenol.	Menthyl isovalerate; <i>p</i> -menth-3-yl isovalerate.
Isoeugenyl acetate.	o-Methoxybenzaldehyde.
Isoeugenyl benzyl ether; benzyl isoeugenol.	<i>p</i> -Methoxybenzaldehyde; <i>p</i> -anisaldehyde.
Isoeugenyl ethyl ether; 2-ethoxy-5-propenyl-anisole; ethyl isoeugenol.	o-Methoxycinnamaldehyde.
Isoeugenyl formate.	2-Methoxy-4-methylphenol; 4-methylguaiacol; 2-methoxy- <i>p</i> -cresol.
Isoeugenyl methyl ether; 4-propenylveratrole; methyl isoeugenol.	4-( <i>p</i> -Methoxyphenyl)-2-butanone; anisyl acetone.
Isoeugenyl phenylacetate.	1-(4-Methoxyphenyl)-4-methyl-1-penten-3-one; methoxystyryl isopropyl ketone.
Isojasrone; mixture of 2-hexyl-2-hexylidenecyclopentanone and 2-hexyl-2-cyclopenten-1-one.	1-( <i>p</i> -Methoxyphenyl)-1-penten-3-one; α-methylanisylidene acetone; ethone.
α-Isomethylionone; 4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one; methyl γ-ionone.	
Isopropyl acetate.	
ρ-Isopropylacetophenone.	

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1-(*p*-Methoxyphenyl)-2-propanone;  
anisylmethyl ketone; anisic ketone.  
2-Methoxy-4-vinylphenol; *p*-vinylguaiacol.  
Methyl acetate.  
4'-Methylacetophenone; *p*-methylacetophenone; methyl *p*-tolyl ketone.  
2-Methylallyl butyrate; 2-methyl-2-propenyl butyrate.  
Methyl anisate.  
*o*-Methylanisole; *o*-cresyl methyl ether.  
*p*-Methylanisole; *p*-cresyl methyl ether; *p*-methoxytoluene.  
Methyl benzoate.  
Methylbenzyl acetate, mixed *o*-, *m*-, *p*-.  
*α*-Methylbenzyl acetate; styralyl acetate.  
*α*-Methylbenzyl alcohol; styralyl alcohol.  
*α*-Methylbenzyl butyrate; styralyl butyrate.  
*α*-Methylbenzyl isobutyrate; styralyl isobutyrate.  
*α*-Methylbenzyl formate; styralyl formate.  
*α*-Methylbenzyl propionate; styralyl propionate.  
2-Methyl-3-butene-2-ol.  
2-Methylbutyl isovalerate.  
Methyl *p*-tert-butylphenylacetate.  
2-Methylbutyraldehyde; methyl ethyl acetaldehyde.  
3-Methylbutyraldehyde; isovaleraldehyde.  
Methyl butyrate.  
2-Methylbutyric acid.  
*α*-Methylcinnamaldehyde.  
*p*-Methylcinnamaldehyde.  
Methyl cinnamate.  
2-Methyl-1,3-cyclohexadiene.  
Methylcyclopentenolone; 3-methylcyclopentane-1,2-dione.  
Methyl disulfide; dimethyl disulfide.  
Methyl ester of rosin, partially hydrogenated (as defined in § 172.615); methyl dihydroabietate.  
Methyl heptanoate.  
2-Methylheptanoic acid.  
6-Methyl-3,5-heptadien-2-one.  
Methyl-5-hepten-2-ol.  
6-Methyl-5-hepten-2-one.  
Methyl hexanoate.  
Methyl 2-hexanoate.  
Methyl *p*-hydroxybenzoate; methylparaben.  
Methyl  $\alpha$ -ionone; 5-(2,6,6-trimethyl-2-cyclohexen-1-yl)-4-penten-3-one.  
Methyl  $\beta$ -ionone; 5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-4-penten-3-one.  
Methyl  $\Delta$ -ionone; 5-(2,6,6-trimethyl-3-cyclohexen-1-yl)-4-penten-3-one.  
Methyl isobutyrate.  
2-Methyl-3-(*p*-isopropylphenyl)-propionaldehyde;  $\alpha$ -methyl-*p*-isopropylhydrocinnamaldehyde; cyclamen aldehyde.  
Methyl isovalerate.  
Methyl laurate.  
Methyl mercaptan; methanethiol.  
Methyl *o*-methoxybenzoate.  
Methyl *N*-methylanthranilate; dimethyl anthranilate.  
Methyl 2-methylbutyrate.  
Methyl-3-methylthiopropionate.

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Methyl 4-methylvalerate.  
Methyl myristate.  
Methyl  $\beta$ -naphthyl ketone; 2'-acetonaphthone.  
Methyl nonanoate.  
Methyl 2-nonenanoate.  
Methyl 2-nonynoate; methyloctyne carbonate.  
2-Methyoctanal; methyl hexyl acetaldehyde.  
Methyl octanoate.  
Methyl 2-octynoate; methyl heptine carbonate.  
4-Methyl-2,3-pentanedione; acetyl isobutyryl.  
4-Methyl-2-pantanone; methyl isobutyl ketone.  
 $\beta$ -Methylphenethyl alcohol; hydratropyl alcohol.  
Methyl phenylacetate.  
3-Methyl-4-phenyl-3-butene-2-one.  
2-Methyl-4-phenyl-2-butyl acetate; dimethylphenylethyl carbinal acetate.  
2-Methyl-4-phenyl-2-butyl isobutyrate; dimethylphenyl ethylcarbinal isobutyrate.  
3-Methyl-2-phenylbutyraldehyde;  $\alpha$ -isopropyl phenylacetaldehyde.  
Methyl 4-phenylbutyrate.  
4-Methyl-1-phenyl-2-pantanone; benzyl isobutyl ketone.  
Methyl 3-phenylpropionate; methyl hydrocinnamate.  
Methyl propionate.  
3-Methyl-5-propyl-2-cyclohexen-1-one.  
Methyl sulfide.  
3-Methylthiopropionaldehyde; methional.  
2-Methyl-3-tolylpropionaldehyde, mixed *o*-, *m*-, *p*.  
2-Methylundecanal; methyl nonyl acetaldehyde.  
Methyl 9-undecenoate.  
Methyl 2-undecynoate; methyl decyne carbonate.  
Methyl valerate.  
2-Methylvaleric acid.  
Myrcene; 7-methyl-3-methylene-1,6-octadiene.  
Myristaldehyde; tetradecanal.  
*d*-Neomenthol; 2-isopropyl-5-methylcyclohexanol.  
Nerol; *cis*-3,7-dimethyl-2,6-octadien-1-ol.  
Nerolidol; 3,7,11-trimethyl-1,6,10-dodecatrien-3-ol.  
Neryl acetate.  
Neryl butyrate.  
Neryl formate.  
Neryl isobutyrate.  
Neryl isovalerate.  
Neryl propionate.  
2,6-Nonadien-1-ol.  
 $\gamma$ -Nonalactone; 4-hydroxynonanoic acid,  $\gamma$ -lactone; aldehyde C-18.  
Nonanal; pelargonic aldehyde.  
1,3-Nonanediol acetate, mixed esters.  
Nonanoic acid; pelargonic acid.  
2-Nonanone; methylheptyl ketone.  
3-Nonanon-1-yl acetate; 1-hydroxy-3-nonanone acetate.

Nonyl acetate.	4-Phenyl-2-butanol; phenylethyl methyl carbinol.
Nonyl alcohol; 1-nonalol.	4-Phenyl-3-buten-2-ol; methyl styryl carbinol.
Nonyl octanoate.	4-Phenyl-3-buten-2-one.
Nonyl isovalerate.	4-Phenyl-2-butyl acetate; phenylethyl methyl carbonyl acetate.
Nootkatone; 5,6-dimethyl-8-isopropenyl bicyclo[4.4.0]-dec-1-en-3-one.	1-Phenyl-3-methyl-3-pentanol; phenylethyl methyl ethyl carbinol.
Ocimene; <i>trans</i> -β-ocimene; 3,7-dimethyl-1,3,6-octatriene.	1-Phenyl-1-propanol; phenylethyl carbinol.
γ-Octalactone; 4-hydroxyoctanoic acid, γ-lactone.	3-Phenyl-1-propanol; hydrocinnamyl alcohol.
Octanal; caprylaldehyde.	2-Phenylpropionaldehyde; hydratropaldehyde.
Octanal dimethyl acetal.	3-Phenylpropionaldehyde; hydrocinnamaldehyde.
1-Octanol; octyl alcohol.	2-Phenylpropionaldehyde dimethyl acetal; hydratropic aldehyde dimethyl acetal.
2-Octanol.	3-Phenylpropionic acid; hydrocinnamic acid.
3-Octanol.	3-Phenylpropyl acetate.
2-Octanone; methyl hexyl ketone.	2-Phenylpropyl butyrate.
3-Octanone; ethyl amyl ketone.	3-Phenylpropyl cinnamate.
3-Octanon-1-ol.	3-Phenylpropyl formate.
1-Octen-3-ol; amyl vinyl carbinol.	3-Phenylpropyl hexanoate.
1-Octen-3-yl acetate.	2-Phenylpropyl isobutyrate.
Octyl acetate.	3-Phenylpropyl isobutyrate.
3-Octyl acetate.	3-Phenylpropyl isovalerate.
Octyl butyrate.	3-Phenylpropyl propionate.
Octyl formate.	2-(3-Phenylpropyl)-tetrahydrofuran.
Octyl heptanoate.	α-Pinene; 2-pinene.
Octyl isobutyrate.	β-Pinene; 2(10)-pinene.
Octyl isovalerate.	Pine tar oil.
Octyl octanoate.	Pinocarveol; 2(10)-pinen-3-ol.
Octyl phenylacetate.	Piperidine.
Octyl propionate.	Piperine.
ω-Pentadecalactone; 15-hydroxypentadecanoic acid, ω-lactone; pentadecanolide; angelica lactone.	<i>d</i> -Piperitone; <i>p</i> -menth-1-en-3-one.
2,3-Pentanedione; acetyl propionyl.	Piperitenone; <i>p</i> -mentha-1,4(8)-dien-3-one.
2-Pentanone; methyl propyl ketone.	Piperitenone oxide; 1,2-epoxy- <i>p</i> -menth-4-(8)-en-3-one.
4-Pentenoic acid.	Piperonyl acetate; heliotropyl acetate.
1-Penten-3-ol.	Piperonyl isobutyrate.
Perillaldehyde; 4-isopropenyl-1-cyclohexene-1-carboxaldehyde; <i>p</i> -mentha-1,8-dien-7-al.	Polylimonene.
Perillyl acetate; <i>p</i> -mentha-1,8-dien-7-yl acetate.	Polysorbate 20; polyoxyethylene (20) sorbitan monolaurate.
α-Phellandrene; <i>p</i> -mentha-1,5-diene.	Polysorbate 60; polyoxyethylene (20) sorbitan monostearate.
Phenethyl acetate.	Polysorbate 80; polyoxyethylene (20) sorbitan monooleate.
Phenethyl alcohol; β-phenylethyl alcohol.	Potassium acetate.
Phenethyl anthranilate.	Propenylguaethol; 6-ethoxy- <i>m</i> -anol.
Phenethyl benzoate.	Propionaldehyde.
Phenethyl butyrate.	Propyl acetate.
Phenethyl cinnamate.	Propyl alcohol; 1-propanol.
Phenethyl formate.	<i>p</i> -Propyl anisole; dihydroanethole.
Phenethyl isobutyrate.	Propyl benzoate.
Phenethyl isovalerate.	Propyl butyrate.
Phenethyl 2-methylbutyrate.	Propyl cinnamate.
Phenethyl phenylacetate.	Propyl disulfide.
Phenethyl propionate.	Propyl formate.
Phenethyl salicylate.	Propyl 2-furanacrylate.
Phenethyl senecioate; phenethyl 3,3-dimethylacrylate.	Propyl heptanoate.
Phenethyl tiglate.	Propyl hexanoate.
Phenoxyacetic acid.	Propyl <i>p</i> -hydroxybenzoate; propylparaben.
2-Phenoxyethyl isobutyrate.	3-Propylideneephthalide.
Phenylacetaldehyde; α-toluic aldehyde.	Propyl isobutyrate.
Phenylacetaldehyde 2,3-butylene glycol acetal.	Propyl isovalerate.
Phenylacetaldehyde dimethyl acetal.	Propyl mercaptan.
Phenylacetaldehyde glyceryl acetal.	α-Propylphenethyl alcohol.
Phenylacetic acid; α-toluic acid.	

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Propyl phenylacetate.	$\gamma$ -Undecalactone; 4-hydroxyundecanoic acid
Propyl propionate.	$\gamma$ -lactone; peach aldehyde; aldehyde C-14.
Pulegone; <i>p</i> -menth-4(8)-en-3-one.	Undecenal.
Pyridine.	2-Undecanone; methyl nonyl ketone.
Pyroligneous acid extract.	9-Undecenal; undecenoic aldehyde.
Pyruvaldehyde.	10-Undecenal.
Pyruvic acid.	Undecen-1-ol; undecylenic alcohol.
Rhodinol; 3,7-dimethyl-7-octen-1-ol; <i>l</i> -citronellol.	10-Undecen-1-yl acetate.
Rhodinyl acetate.	Undecyl alcohol.
Rhodinyl butyrate.	Valeraldehyde; pentanal.
Rhodinyl formate.	Valeric acid; pentanoic acid.
Rhodinyl isobutyrate.	Vanillin acetate; acetyl vanillin.
Rhodinyl isovalerate.	Veratraldehyde.
Rhodinyl phenylacetate.	Verbenol; 2-pinene-4-ol.
Rhodinyl propionate.	Zingerone; 4-(4-hydroxy-3-methoxyphenyl)-2-butanone.
Rum ether; ethyl oxyhydrate.	
Salicylaldehyde.	
Santalol, $\alpha$ and $\beta$ .	
Santalyl acetate.	
Santalyl phenylacetate.	
Skatole.	
Sorbitan monostearate.	
Styrene.	
Sucrose octaacetate.	
$\alpha$ -Terpinene.	(c) $\Delta$ -Decalactone and $\Delta$ -dodecalactone when used separately or in combination in oleomargarine are used at levels not to exceed 10 parts per million and 20 parts per million, respectively, in accordance with § 166.110 of this chapter.
$\gamma$ -Terpinene.	
$\alpha$ -Terpineol; <i>p</i> -menth-1-en-8-ol.	(d) BHA (butylated hydroxyanisole) may be used as an antioxidant in flavoring substances whereby the additive does not exceed 0.5 percent of the essential (volatile) oil content of the flavoring substance.
$\beta$ -Terpineol.	
Terpinolene; <i>p</i> -menth-1,4(8)-diene.	
Terpinyl acetate.	[42 FR 14491, Mar. 15, 1977, as amended at 42 FR 23148, May 6, 1977; 43 FR 19843, May 9, 1978; 45 FR 22915, Apr. 4, 1980; 47 FR 27810, June 25, 1982; 48 FR 10812, Mar. 15, 1983; 48 FR 51907, Nov. 15, 1983; 49 FR 5747, Feb. 15, 1984; 50 FR 42932, Oct. 23, 1985; 54 FR 7402, Feb. 21, 1989; 61 FR 14245, Apr. 1, 1996]
Terpinyl anthranilate.	
Terpinyl butyrate.	
Terpinyl cinnamate.	
Terpinyl formate.	
Terpinyl isobutyrate.	
Terpinyl isovalerate.	
Terpinyl propionate.	
Tetrahydrofurfuryl acetate.	
Tetrahydrofurfuryl alcohol.	
Tetrahydrofurfuryl butyrate.	
Tetrahydrofurfuryl propionate.	
Tetrahydro-pseudo-ionone; 6,10-dimethyl-9-undecen-2-one.	
Tetrahydrolinalool; 3,7-dimethyloctan-3-ol.	
Tetramethyl ethylcyclohexenone; mixture of 5-ethyl-2,3,4,5-tetramethyl-2-cyclohexen-1-one and 5-ethyl-3,4,5,6-tetramethyl-2-cyclohexen-1-one.	
2-Thienyl mercaptan; 2-thienylthiol.	
Thymol.	
Tolualdehyde glyceryl acetal, mixed <i>o</i> , <i>m</i> , <i>p</i> .	
Tolualdehydes, mixed <i>o</i> , <i>m</i> , <i>p</i> .	
<i>p</i> -Tolylacetaldehyde.	
<i>o</i> -Tolyl acetate; <i>o</i> -cresyl acetate.	
<i>p</i> -Tolyl acetate; <i>p</i> -cresyl acetate.	
4-( <i>p</i> -Tolyl)-2-butanone; <i>p</i> -methylbenzylacetone.	
<i>p</i> -Tolyl isobutyrate.	
<i>p</i> -Tolyl laurate.	
<i>p</i> -Tolyl phenylacetate.	
2-( <i>p</i> -Tolyl)-propionaldehyde; <i>p</i> -methylhydrotropic aldehyde.	
Tributyl acetylcitrate.	
2-Tridecenal.	
2,3-Undecadione; acetyl nonyrl.	

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$\gamma$ -Undecalactone; 4-hydroxyundecanoic acid  
 $\gamma$ -lactone; peach aldehyde; aldehyde C-14.

Undecenal.

2-Undecanone; methyl nonyl ketone.

9-Undecenal; undecenoic aldehyde.

10-Undecenal.

Undecen-1-ol; undecylenic alcohol.

10-Undecen-1-yl acetate.

Undecyl alcohol.

Valeraldehyde; pentanal.

Valeric acid; pentanoic acid.

Vanillin acetate; acetyl vanillin.

Veratraldehyde.

Verbenol; 2-pinene-4-ol.

Zingerone; 4-(4-hydroxy-3-methoxyphenyl)-2-butanone.

(c)  $\Delta$ -Decalactone and  $\Delta$ -dodecalactone when used separately or in combination in oleomargarine are used at levels not to exceed 10 parts per million and 20 parts per million, respectively, in accordance with § 166.110 of this chapter.

(d) BHA (butylated hydroxyanisole) may be used as an antioxidant in flavoring substances whereby the additive does not exceed 0.5 percent of the essential (volatile) oil content of the flavoring substance.

[42 FR 14491, Mar. 15, 1977, as amended at 42 FR 23148, May 6, 1977; 43 FR 19843, May 9, 1978; 45 FR 22915, Apr. 4, 1980; 47 FR 27810, June 25, 1982; 48 FR 10812, Mar. 15, 1983; 48 FR 51907, Nov. 15, 1983; 49 FR 5747, Feb. 15, 1984; 50 FR 42932, Oct. 23, 1985; 54 FR 7402, Feb. 21, 1989; 61 FR 14245, Apr. 1, 1996]

**§ 172.520 Cocoa with dioctyl sodium sulfosuccinate for manufacturing.**

The food additive "cocoa with dioctyl sodium sulfosuccinate for manufacturing," conforming to § 163.117 of this chapter and § 172.810, is used or intended for use as a flavoring substance in dry beverage mixes whereby the amount of dioctyl sodium sulfosuccinate does not exceed 75 parts per million of the finished beverage. The labeling of the dry beverage mix shall bear adequate directions to assure use in compliance with this section.

**§ 172.530 Disodium guanylate.**

Disodium guanylate may be safely used as a flavor enhancer in foods, at a level not in excess of that reasonably required to produce the intended effect.